

ABSTRACT OF THE DISCLOSURE

A phase comparator (106) compares a phase of the output signal of the quadrature modulator (104) with the phase of the
5 signal obtained by frequency-converting the output signal of a first VCO (101) via the second VCO (102) and the first mixer (108). A PLL modulator includes a low-pass filter (107) filters a component below a predetermined frequency of the output signal of the phase comparator (106) and supplying the resulting signal
10 to the frequency control terminal of the first VCO (101). The output signal (TS1) of the first VCO (101) is a modulated signal conforming to a modulation system having a constant envelope waveform, while the output signal of the quadrature modulator (104) is input to the first band-pass filter (110) and the output
15 signal (TS2) of the first band-pass filter is a modulated signal conforming to a modulation system accompanied by an amplitude component as information.